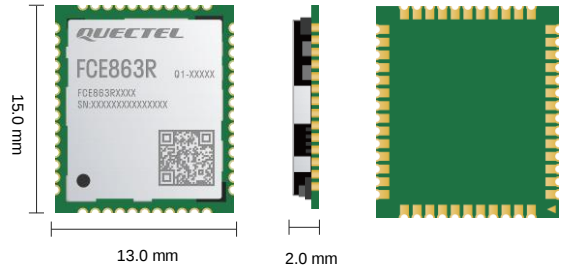


Quectel FCE863R

Wi-Fi 6 & Bluetooth 5.2 Module Ultra-compact LCC Package



FCE863R is a high-performance Wi-Fi 6 and Bluetooth 5.2 module featuring 2T2R in LCC package. It can be used for WLAN and Bluetooth connections, providing a maximum data rate up to 1201 Mbps.

With an ultra-compact size of 15.0 mm × 13.0 mm × 2.0 mm, the module optimizes the size and cost for end-products, which fully meets the demands of size-sensitive applications.

Surface-mount technology (SMT) makes the module an ideal solution for durable and rugged designs. The low profile and small size of LCC package ensure that the module can be easily embedded into size-constrained applications and provide reliable connectivity with these applications.

Based on the reliable PCIe 1.1 interface, the module can achieves low-power and high-speed data transmission. Coupled with its compact size, lower power consumption, ultra-wide temperature range, and high reliability, FCE863R can meet the application needs of the consumer field.



Key Features

- ✓ Dual-band 2.4 GHz and 5 GHz Wi-Fi and Bluetooth 5.2
- ✓ Supports PCIe 1.1 interface, with higher data transmission rate and lower power consumption
- ✓ Faster time-to-market: simple design minimizes design-in time and development efforts
- ✓ Wide temperature range: -20 °C to +70 °C or -40 °C to + 85 °C



IEEE 802.11
a/b/g/n/ac/ax



Bluetooth 5.2



PCIe 1.1 Interface



Temperature Range:
-20 °C to +70 °C or
-40 °C to + 85 °C



Ultra-compact Size



LCC Package

Wi-Fi 6 & Bluetooth 5.2	FCE863R
WLAN Protocol	IEEE 802.11a/b/g/n/ac/ax
Wi-Fi Frequency Band	2.4 GHz/ 5 GHz
Wi-Fi Antenna	2 × 2
Wi-Fi Modulation Mode	DBPSK/ DQPSK/ CCK/ BPSK/ QPSK/ 16QAM/ 64QAM/ 256QAM/ 1024QAM
2.4 GHz Channel Bandwidth	20 MHz/ 40 MHz
5 GHz Channel Bandwidth	20 MHz/ 40 MHz/ 80 MHz
Encryption Mode	WPA3
Wi-Fi Operating Mode	AP/ STA
Bluetooth Protocol	Bluetooth 5.2
Dimensions	15.0 mm × 13.0 mm × 2.0 mm
Weight	Approx. 0.84 g
Temperature Range	
Operating Temperature	-20 °C to +70 °C or -40 °C to + 85 °C (Optional)
Physical Rate (Max.)	
802.11a	54 Mbps
802.11b	11 Mbps
802.11g	54 Mbps
802.11n	300 Mbps
802.11ac	866.7 Mbps
802.11ax	1201 Mbps
Interfaces	
PCIe 1.1	× 1 (For Wi-Fi)
PCM	× 1 (For Bluetooth)
UART	× 1 (For Bluetooth)
Enable Pins	WLAN_EN, BT_EN
Wi-Fi Antenna Interfaces ^①	× 2 (ANT_WIFI0, ANT_WIFI1/BT) (Optional)
Bluetooth Antenna Interface	× 1 (ANT_BT) (Optional)
Electrical Features	
Power Supply Voltage	VBAT: 3.0–3.6 V, Typ. 3.3 V VDD_IO: 1.7–3.6 V, Typ. 1.8/3.3 V
Power Consumption	Max. current at Tx mode: 413.1 mA @ 3.3 V 0.4 mA @ 1.8 V
Certifications	
Regulatory	China: SRRC Europe: CE America: FCC Canada: IC Australia/New Zealand: RCM Japan: JATE ^② / TELEC South Korea: KC

NOTE:
1. ①: ANT_WIFI1/BT serves as a Wi-Fi and Bluetooth antenna interface in two-antenna solution and only Wi-Fi antenna interface in three-antenna solution.
2. ②: Planning.

Wi-Fi 6 & Bluetooth 5.2 FCE863R

Wi-Fi Performance

		Receiver Sensitivity (Typ.)	Transmit Power (Typ.)
2.4 GHz	802.11b/1 Mbps	-98 dBm	19.5 dBm
	802.11b/11 Mbps	-90 dBm	19.5 dBm
	802.11g/6 Mbps	-95 dBm	19.5 dBm
	802.11g/54 Mbps	-77 dBm	18 dBm
	802.11n/HT20 MCS 0	-95 dBm	19.5 dBm
	802.11n/HT20 MCS 7	-76 dBm	17 dBm
	802.11n/HT40 MCS 0	-92 dBm	19.5 dBm
	802.11n/HT40 MCS 7	-72 dBm	17 dBm
	802.11ax/HE20 MCS 0	-95 dBm	19.5 dBm
	802.11ax/HE20 MCS 11	-67 dBm	13 dBm
	802.11ax/HE40 MCS 0	-92 dBm	19.5 dBm
	802.11ax/HE40 MCS 11	-63 dBm	13 dBm
5 GHz	802.11a/6 Mbps	-93 dBm	19.5 dBm
	802.11a/54 Mbps	-76 dBm	18 dBm
	802.11n/HT20 MCS 0	-93 dBm	19.5 dBm
	802.11n/HT20 MCS 7	-74 dBm	17 dBm
	802.11n/HT40 MCS 0	-90 dBm	19.5 dBm
	802.11n/HT40 MCS 7	-71 dBm	17 dBm
	802.11ac/VHT20 MCS 0	-93 dBm	19.5 dBm
	802.11ac/VHT20 MCS 8	-70 dBm	16 dBm
	802.11ac/VHT40 MCS 0	-90 dBm	19.5 dBm
	802.11ac/VHT40 MCS 9	-65 dBm	15 dBm
	802.11ac/VHT80 MCS 0	-87 dBm	19.5 dBm
	802.11ac/VHT80 MCS 9	-62 dBm	15 dBm
	802.11ax/HE20 MCS 0	-93 dBm	19.5 dBm
	802.11ax/HE20 MCS 11	-65 dBm	13 dBm
	802.11ax/HE40 MCS 0	-90 dBm	19.5 dBm
	802.11ax/HE40 MCS 11	-63 dBm	13 dBm
	802.11ax/HE80 MCS 0	-88 dBm	19.5 dBm
	802.11ax/VHT80 MCS 11	-60 dBm	13 dBm

Bluetooth Performance

	Receiver Sensitivity (Typ.)	Transmit Power (Typ.)
BR (GFSK)	-82 dBm	5 dBm
EDR (π/4-DQPSK)	-84 dBm	5 dBm
EDR (8-DQPSK)	-79 dBm	5 dBm
BLE (1 Mbps)	-87 dBm	5 dBm
BLE (2 Mbps)	-84 dBm	5 dBm
BLE (S = 2)	-87 dBm	5 dBm
BLE (S = 8)	-96 dBm	5 dBm

Model	Ordering Code	Antenna	Temperature Range	Development Board (Only for Debugging)
FCE863R	FCE863RACMD	Two antennas	-20 °C to +70 °C	FCE863RACM2
FCE863R	FCE863RBACMD	Three antennas	-20 °C to +70 °C	FCE863RBACM2
FCE863R	FCE863RABMD	Two antennas	-40 °C to + 85 °C	FCE863RABM2
FCE863R	FCE863RBABMD	Three antennas	-40 °C to + 85 °C	FCE863RBABM2